# Enhancing Access to Healthcare Services: A Lead Driver for more Economic Productivities in Kaduna State, Nigeria

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**ABSTRACT**
For any nation to develop its citizens must be productive and they can be productive only when they are healthy; however, in Kaduna State, Nigeria, the prevalent and incidence of both communicable and non-communicable diseases has being on the increase over the recent times, and only 36 per cent of women in the state has benefit of access to health providers. As such, this study examined accessibility of Sabon-Gari and Giwa populace in Kaduna State, Nigeria to healthcare services. Data were from 400 healthcare service users and 47 health facilities in both Giwa and Sabon-Gari Local Government Areas, and analysis was through descriptive statistics. Evidence from findings indicates that healthcare services providers to population ratios are quite low with an average of 5,309 and 34,089 residents to a medical doctor in Sabon-Gari and Giwa LGAs respectively. Based on these findings, the study therefore recommended that training and recruitment of medical doctors and nurses/midwives (and other paramedical personnel) should continuously match the residents' health demands in both Sabon-Gari and Giwa LGAs.

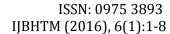## INTRODUCTION

Generally, citizens' accesses to quality healthcare services will make individuals more productive, either through fewer days off work or through increased output while working; contribute to the household welfare and well-being of the society. In addition, improved health of individuals will have a similar impact through reducing time lost to caring for the sick ones [1]. By implication, for any nation to develop, its citizens must be productive and they can be productive only when they are healthy [2]. For most developed and developing economies, equity of access to health facilities and effective healthcare services has been their central welfare objective. For example, Chile, Germany, Greece, New Zealand, Slovenia, Sweden and the United Kingdom formed an international forum on issues to increase access to healthcare services for all their citizens in 2003. After eleven years however, evidence reviewed from [3] revealed that, in term of access of citizens to healthcare services, United Kingdom ranks first, Germany second, Sweden fourth and New Zealand seventh among eleven wealthier nations of the world examined.

But indication from Africa show that, nearly 90 per cent of Tunisia's citizens have access to effective healthcare services through health insurance that provides a relatively high level of basic healthcare services [4]. The insurance coverage is funded through employee and government contribution, and government's subsidies cover for those who are poor and unemployed. However, evidences from Nigeria identified various constraints of access to healthcare services as associated with high cost of services, proximity, uneven distribution of health facilities, and hours spent in accessing healthcare services.

The theoretical literature on healthcare accessibility is well developed. Neoclassical consumer theory helps the paper to recognize that patients make prudent, logical and rational decisions that involve healthcare utilization. This rational decision led them to demand for healthcare services as influenced by factors such as: social class, work environment, employment status, and income, housing conditions, pollution, diet, lifestyle and healthcare providers' availability as Grossman argued [5], while Sen's capability approach (see [6] and [7]) opined healthy living as an output of functioning and capability of individual for more economic productivities. In addition, there is fast-growing empirical evidence concerning the issue of healthcare accessibility, but their results and conclusions appear to be sensitive to techniques

used only. Therefore, given the relevancy of healthy citizens for more economic productivities, the paper examined accessibility of healthcare services in Kaduna State taken evidence from Sabon-Gari and Giwa Local Government Areas. The paper was organized as follows. The first is the introductory part, while the second provides the reviews of literatures (the conceptual issues, theoretical and empirical reviews) on healthcare accessibility. Section three presents methodology. Section four focuses data analysis and discussion of findings. In section six, the paper presents recommendations and policy implications with conclusion.

## LITERATURES
### An Overview of Healthcare Accessibility
Access to healthcare services measures fair distribution of health facilities [8]. It also concerns the ease with which specific location (such as the location of health facilities) can be reached from a given point of communities [9]. As [10] opines, accessibility implies physical availability of a facility or service. Similarly, healthcare accessibility is also seen as the ability of individual to secure a specified range of healthcare services, at a specified level of quality, subject to a specified maximum level of personal inconvenience and cost [11]. It implies that individuals should be given equal opportunity to use health facilities with little or without regard to other characteristics such as their level of income and ability to pay [12].

This is paramount because, an individual's health status impacts upon one's labour supply [13], labour productivities ([14] and [15]) and economic growth [16]. Equal access to healthcare services improves not only the number of hours or days that an individual would dedicate to his/her work, but also the very decision of participating in labour force. Similarly, the choice of early retirement [17] may at least partly be driven by an individual's poor or declining health status. As [18] emphasized, ill health often contributes to declines in economic welfare of households in most developing economies. Therefore, to ensure more access to healthcare services in all regions of the World, WHO recommended global average of one medical doctor to 700 populations and 1,000 populations to a nurse [19].

## Theories
From neoclassical philosophy, healthcare is desired by humans because it generates utilities (pleasure). Utility is generated from healthcare in two ways: first, ill-health is painful, it is a source of disutility to human; however better health means more sick-free days available for both economic activities. This is because with these sick-free days, people can produce economic activities that will improve both their individual and societal welfare. [20] suggests that healthier individual are likely to be more productive but illness brings pain, while [2] predicted that healthy living enhances human capital for more economic growth.
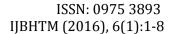
The neoclassical explanation can also be structure using simple utility function:

$$U_i = U_i (q^*, x_i^o - x_i) \qquad (2.1)$$

supposing $q^*$ equal the vector of commodities in-take; $x_i^o$ represent the total amount of time available to individual i; $x_i$ the amount of labour services supplied by individual i for economic activities; $x_i^o - x_i$ represent leisure time (non-economic activities) of individual i, and $U_i$ be the level of wellness for individual to function efficiently in the society. The limitation in accessing effective healthcare services might constrain amount of time available for economic activities $(x_i^o)$, amount of labour services supplied by individual $(x_i)$, leisure time of individual $(x_i^o - x_i)$, and pleasure required by individual i $(U_i)$ to function efficiently in the society.

Similarly, healthcare is considered as merit goods (just like education) and its consumption generates externalities [21]. To patients, healthcare is like a different kind of commodity; unlike other physical commodities such as automobile or house, because it determines humans' very existence and state of being. Thus, its demand curve is not as consumer's willingness to pay as viewed by the neoclassical theory. Therefore, leaving its distribution to financial ability of individual might be problematic.

However, Grossman theory [5] opined various factors that determine accessibility of individual to healthcare services. These factors include; social class, employment status, income, housing conditions, heating, pollution, education, diet and

lifestyle. The model emphasize is similar to neoclassical idea that health serve as fundamental commodity for every individual to function effectively in the society. And that individual allocates their resources to produce health, which implies that the demand for healthcare is a derived demand. The theory also emphasized that individuals inherit an initial amount of health capital stock which depreciate with ageing, but can be increased through investments in effective healthcare services [22].

The theory also consisted of two elements; the consumption and investment effects. The consumption effects assumed that health yields directs utility to individual, for instance, one will feel better when one is healthier; however, investment effects explained that health increases the number of days available to participate in both economic and non-economic (leisure) activities. Algebraically,

$$H_t = H_{t-1} - \delta_t + I_t \qquad (2.2)$$

where, $H_t$ represents health stock of individual at the current period, $H_{t-1}$ the previous period health stock of individual, $\delta_t$ the rate of depreciation in health as the age (t) of individual is increasing, and $I_t$ the investment in health stock by timely access to healthcare services.

As expressed in eq. 2.2 above, the theory emphasizes that an individual is born with an initial health endowment of H which they add to by investment, and the rate of H output will depend on the efficiency of $I_t$. However, the value of health stock of H could reduce through ageing, accident, carelessness and sudden diseases $\delta_t$. Thus, the emphasis of the model that individual would invest in health until the marginal benefit of health equals its marginal cost is limited, because healthcare outcome always generates marginal benefits that are greater than the marginal costs of obtaining such services. The theory helped the paper to identify various socio-economic factors that that influence healthcare accessibility.

Furthermore, Sen's approaches [6] and [7] were based on functioning and capability. Sen's capabilities approach focus on maximizing what an individual can choose to achieve in life such as the ability to access health services or effective freedom of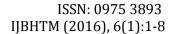 an individual to choose between different functioning combinations that he/she has value for; while functioning are states of 'being and doing' such as being healthy and well-nourished for economic productivity. This will ultimately affect the individual's well-being which is defined as the actual enjoyment of the individual's choices deriving from the range of options available to them [6]. Unlike the idea of neo-classical utilitarianism, the approaches look at range of options available for the individual to choose from and the freedom to exercise that choice. As [23] put it, the theory outlines some of the theoretical underpinning the reasons why health and personal autonomy are required conditions to realize truly equal citizenship.

**Empirical Studies**

The study of [24] examines the magnitude of barriers in access to health services in Greece for chronic patients and their socio-economic characteristics that affect them. A total of 1,594 Greek patients were examined and the data obtained were analyzed through logistic regression techniques. Their findings showed that 1,012 patients (63.5 per cent) that are suffering from diabetes; hypertension and Alzheimer were also unemployed, indicating that socio-economic status are associated with disparities in health status and differences in access to healthcare services.

Similarly, [8] investigated factors influencing the accessibility of 25,434 residents to healthcare services in rural India, using dummy regression, correlation and chi-square techniques. Their findings showed that distance to the health centers is found to be significant at 10 per cent level as major determinant of access to health services.

However, [26] attributed the high maternal and neonatal mortality rates in South Asia and sub-Saharan Africa to lack of access and utilization of health services. Data from Demographic and Health Surveys (DHS) conducted in Bangladesh, India, Pakistan, Kenya, Nigeria and Tanzania were analyzed using logistic regression technique. Their findings revealed that, (i.) more than 50 per cent of births in these countries were delivered outside health facilities (these births were delivered by traditional birth attendants and other untrained attendants who could not handle complications due

to limited access to orthodoxy health services), and (ii.) income, cost and distance posed a barriers to healthcare delivery more in Kenya and Pakistan.

For the study of [27], the accessibility and utilization of health centers in three community healthcare facilities in Tshwane Region of Gauteng province, South Africa was investigated with the aid of descriptive statistics. Their finding showed that the health facilities were accessible as most of the respondents lived within 5 km of such a facility. But [28] assessed the impact of accessibility and socio-economic factors that influences the utilization of health services of 650 residents of Ahafo-Ano South District and Kumasi Metropolis Metropolis in Ghana, employing multiple regression techniques. The findings of the study showed a clear correlation between high mortalities rates and long distance to access healthcare services in Ahafo-Ano South District and Kumasi Metropolis, Ghana.
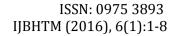
In Nigeria, studies identified various constraints as associated with high cost of services, proximity, uneven distribution of health facilities, and hours spent in accessing healthcare services, among other constraints. Such literatures include, [29], [30], and [31]. For example, the study by [31] employed descriptive statistics to show how high cost of services and hours spent in accessing healthcare services limit effective healthcare services in Zaria, Nigeria. The authors assessed two hundred residents of Zaria City, Tundun Wada, Sabon-Gari and Samaru comprising 40 health providers and 160 members of the public from 10 health facilities. The study revealed that health personnel to patient ratios are quite low with an average of fifty patients to health personnel per working day. They also argued that the long hours spent in accessing health facilities discouraged people and based on their socio-economic attributes, the patients might tend to seek alternatives.

In another studies by [32], poverty was identified as major barrier to access modern healthcare services in Ilorin metropolis. The authors employed structural questionnaire and descriptive statistics to investigate factors limiting access to modern healthcare facilities from 510 households. The authors found that the incidence of poverty undermines ability of patients to access modern

healthcare services in Ilorin metropolis. On the other hand, uneven distribution of health care facilities between urban and rural areas as [33] opined seem to be a carry-over from colonial period even before Nigeria's independence. The authors argued that urban areas where most middle and upper classes live received the lion share of health facilities, while majority of Nigerians live in the rural areas, and these distribution patterns seem to left spin-off effects of neglect of rural areas in matters of facilities provision.

The study of [34] examines accessibility of people to healthcare facility especially in rural areas of Osun State, Nigeria. The authors computed the index of accessibility of people to healthcare facility using three variables: population ratio to bed space in each LGA, population ratio to medical doctor, and population ratio to nurses/midwives. Their results revealed that there are five LGAs (Egbedore, Isokan, Ola-Oluwa, Orolu and Atakumosa East) which do not have access to medical consultation within their areas since no doctor was posted to these LGAs. However, Egbedore, Isokan and Ola-Oluwa LGAs have only two nurses/midwives each, 3 nurses for Orolu LGA and Atakumosa-East LGA has 14 nurses. The population ratio to one nurse is at 3,839 in Atakumos-East LGA; 28,419 in Egbedore LGA; 40,163 in Isokan LGA; 27,827 in Olaolu LGA and 9,610 in Orolu LGA. Bed spaces are also limited in these five LGAs as revealed by the authors' findings, for example, Atakumosa-East LGA has only 50 bed spaces, 40 beds were available in Egbedore LGA, for Isokan LGA only 20 beds were available, while 20 and 40 beds were available for Ola-Oluwa and Orolu LGAs respectively. Therefore, the authors opined that healthcare facilities in Osun State are grossly inadequate with attendant deprivation suffered mostly by the rural dwellers.

In summary, quite a number of arguments made point to different factors impeding access to healthcare services. However, above studies showed that the results and conclusions appear to be sensitive to the techniques used only. These studies (that includes [24], [8], [26], [31], and [34] seems not to correlate their findings with the global averages recommended by [19] nor do they investigate the needed health personnel (medical

doctors and nurses) that match the population's health needs of their study areas.

## METHODS

### Data and Source

Data was sourced primarily based on two types of questionnaires – healthcare service users and health facilities. A sample of 400 healthcare users and 47 health facilities were selected from Sabon-Gari and Giwa LGA with each having a sample size of 200.

### The Study Areas

Kaduna State, Nigeria, is divided into three senatorial zones, namely Kaduna North, Central and South which comprises 23 Local Government Areas (NPC, 2006). The state shares its boundary with Katsina State to the North, Niger and Abuja at the West, Plateau State to the South and Kano State to the East. The study chooses Kaduna State because many of her residents are still patronizing the easily accessible traditional medicines and self-medication while many have found victim of quack healthcare providers [31]. Therefore, two LGAs were selected based on the following criteria:

i. The two LGAs *must* be from different senatorial zones in Kaduna State;
ii. One must be an urban LGA while the second must be a rural LGA in the State.
iii. Urbaneness was based on the number of commercial banks, government institutions, economic activities, and commercial markets available in each LGA.

Based on these, Sabon-Gari and Giwa Local Government Areas were chosen for study.

Sabon-Gari LGA had a population of 286,671 (NPC, 2006) in her eleven wards. It is bounded to the North by Ikara LGA, to North-West by Makarfi LGA, to the West by Giwa LGA, Soba LGA lies to the East and Zaria LGA to the south. It is an urban LGA consisting of major commercial banks, higher institutions including Ahmadu Bello University, Zaria; Federal College of Chemical and Leather Technology (CHELTECH), and the Nigerian College of Aviation Technology; Sabon-Gari market (the biggest market in Zaria) and Samaru market. The LGA also consists of various ethnic groups with Hausa as the predominant, while other ethnic groups being Fulani, Yoruba, Igbo, Bajju, among others. The majority of these mostly Hausa populace practice Islam, although Christianity is also widely practiced.

However, Giwa LGA has the population of about 204,532 people [35]. It is bordered by Sabon-Gari, Zaria, Igabi, and Birni Gwari LGAs in Kaduna State. Giwa represents multicultural city on the Savanna of Northwestern Nigeria where several ethnic groups. The study chooses Giwa LGA because the LG captures the diverse characteristics of rural healthcare stakeholders, with one General hospital, eleven primary health centres and 34 health centres.

### Sampling Method

Both LGAs has eleven wards each. While 18 healthcare services users were randomly selected in each of these twenty-two wards, except in Chikaji (Sabon-Gari LGA) and Giwa (Giwa LGA) wards that hosted general hospitals where 20 healthcare users were randomly selected. However, one health facility questionnaire was administered to each of the 47 healthcare facilities across wards in both LGAs.

### Model Specification

Following the index of accessibility model from the study of [34] with some modification, this paper correlate its findings with global averages recommended by WHO [19] and also investigated the needed health personnel (medical doctors and nurses) that match the population's health needs in both Sabon-Gari and Giwa Local Government Areas of Kaduna State, Nigeria.
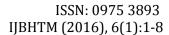
## DATA ANALYSIS AND RESULTS

### *Hypothesis:* $H_0$

Healthcare services are inaccessible in both Sabon-Gari and Giwa Local Government Areas for more economic productivities.

### *Accessibility of residents to medical doctor's consultation*

To ensure healthy society for more economic productivities, [19] recommended a doctor to maximum population of 700 people in any region of

the world. Hence, given $AP_D = \frac{NP}{ND}$ , where $AP_D$ represent the index of accessibility of population to medical consultation, NP is the total number of people, and ND the number of doctors available.

***Decision rule:*** If $AP_D$ is greater than 700, this might implies inaccessibility of residents to medical doctor's consultation and needs to increase more access to medical consultations in the study areas; otherwise, medical consultations are easily accessible.

Sabon-Gari and Giwa LGAs in Kaduna State have the population of 286,671 and 204,532 respectively (see [35]); while 54 and 6 medical doctors were available respectively.

Therefore,

$AP^S_D$ = $\frac{286,671}{54}$ = **5,309**

$AP^G_D$ = $\frac{204,532}{6}$ = **34,089**

Since, 5,309 and 34,089 are greater than the 700 recommended by [19], there is need additional medical doctors in both LGAs.

***Access of residents to medical treatment***
Similarly, the [19] recommendation to ensure equity of access to prompt medical treatment is 1,000 populations at most to a nurse/midwife, $AP_N$ = $\frac{NP}{NN}$, where $AP_N$ is the index of accessibility to medical treatment; NP is population in each LGA, and NN the numbers of nurses available.

***Decision Rule:*** If $AP_N > 1,000$; this might also implies inaccessibility of residents to medical treatment and needs for additional nurses/midwives in the study areas.

Sabon-Gari and Giwa LGAs in Kaduna State have the population of 286,671 and 204,532 respectively (see [35]); while 172 and 31 nurses/midwives were available in both LGA respectively. Thus,

$AP^S_N$ = $\frac{286,671}{172}$ = **1,667**

$AP^G_N$ = $\frac{204,532}{31}$ = **6,598**

1,667 and 6,598 are greater than 1,000 recommended by [19], this implies needs for additional nurses/midwives to increase more access to prompt medical treatment.

From above results, there are inadequacies of healthcare providers in both Sabon-Gari and Giwa LGAs. Therefore, the paper accepted the null hypothesis that healthcare services are inaccessible. These findings were consistent with results obtained from previous studies by [28], [34], and [26]. In essence, limitation in accessing healthcare services in these LGAs holds great potential in constraining the amount of hours worked by individual, their labour force participation in economic activities, their earnings and economic productivities.
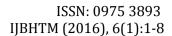
**SUMMARY OF FINDINGS**
Having found that easy access to effective healthcare services is paramount for healthy living and healthy living also important to more economic progress. By implication, any dismal level of inaccessibility to healthcare providers could lefts the residents to explore other ill-health redressing options like self-medication and traditional medicines or fall victims of available quack and semi-qualified healthcare providers which sometimes might result to death and disability.

Economically, limitation in access to healthcare services holds great potential in constraining the amount of hours worked by individual, their labour force participation in economic activities, their earnings and wages, and decision for early retirement. Furthermore, limitation in access to medical treatment can constrain the amount of time available for economic activities, amount of labour services supplied by individual, leisure time of individual, and the pleasure required by individual to function efficiently in the society.

**Recommendation and Conclusion**
The study has been able to examine the accessibility of healthcare services in Kaduna State, Nigeria. Therefore, to enhance more access to healthcare services for more economic productivities and to achieve Kaduna State's vision of being a state where quality healthcare services are easily accessible to all residents in an equitable manner, the study argued for more healthcare services providers (medical doctors and nurses).

## ACKNOWLEDGEMENT

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